

# Application of image processing in adaptation of yeast to environmental conditions, optimized by autogegulatory molecules and PSO

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

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## Abstract

© 2018 Authors. Unlike bacterial signal molecules, secreted yeast ones, which ensure their coordinated behavior as a single system, have been little studied. We used the image processing technique to evaluate the environmental conditions. Communication through quorum sensing molecules (QSM) is the dominant signaling in prokaryotic populations. In eukaryotic yeast cells, stress, caused primarily by the nutrient limit, causes a phenotypic manifestation of the mechanism of dimorphic switching, encompassing the repression of certain groups of genes and the activation of others, determining adhesion and virulence. Analysis of literature data and the results of the authors' own research emphasize the importance of signaling studies involving autoinducer molecules to elucidate the fundamental laws governing the regulation of yeast physiology, including growth parameters, morphogenesis and pathogenicity.

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## Keywords

Image processing, Medical engineering, Particle swarm optimization, Quorum sensing, Yeast

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